ABSTRACT

A method and apparatus for manipulating data in a storage device that is coupled to a host computer. Manipulations that can be performed by the storage device include moving non-contiguous blocks of data between the host computer and the storage device in a single

5   operation. Other manipulations can be performed directly by the storage device without passing data to or from the host computer and include copying data from one logical object that is defined on the host computer to another, initializing, backing-up, transforming, or securely deleting a logical object that is defined by the host computer with a single command. In one embodiment, an application programming interface is provided that allows a relationship

10   between logical objects on a host computer and storage locations on a storage device to be communicated between the host computer and the storage device. By providing the storage device with knowledge of the relationship between a logical object and the storage locations corresponding to that logical object, data corresponding to the logical object can be manipulated directly by the storage device, rather than by the host computer. In another embodiment, a

15   graphical visualization routine is provided that displays the global mapping of a logical object to a set of physical blocks on the storage device for each layer of mapping below the logical object.